H3 p2 partícula de masa = 1 en reposo $\implies E = c^2$ (la energía total es la energía de su masa en reposo)

eq 3.6 apuntes $\implies (1 - \frac{r_s}{r})\frac{dt}{d\tau} = 1 \implies \frac{d\tau}{dt} = 1 - \frac{r_s}{r}$

apuntes: $\tau(r) = \frac{1}{c}(\frac{R^3}{r_s})^{\frac{1}{2}}[(\frac{r}{R} - \frac{r^2}{R^2})^{\frac{1}{2}} + cos^{-1}(\sqrt{\frac{r}{R}})]$

$r = R\frac{1+cos\eta}{2} \implies \tau(\eta) = \frac{1}{c}(\frac{R^3}{r_s})^{\frac{1}{2}}[(\frac{1+cos\eta}{2} - (\frac{1+cos\eta}{2})^2)^{\frac{1}{2}} + cos^{-1}(\sqrt{\frac{1+cos\eta}{2}})]$

$\frac{d\tau}{d\eta} = ...$

$\frac{d\tau}{d\eta}\frac{d\eta}{dt} = 1 - \frac{r_s}{r} \implies \frac{dt}{d\eta} = (1 - \frac{2r_s}{R(1+cos\eta)})^{-1}...$